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UNITED STATES DEPARTMENT OF AGRICULTURE  
Bureau of Agricultural Engineering

## MONTHLY NEWS LETTER

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Reference is made to Bureau Memorandum No. 34, Naming of Beneficiaries under the Retirement Act. The Civil Service Commission urges that the forms for Designation of Beneficiary (2806-1) or Change of Beneficiary (2806-2) be forwarded to them immediately upon execution. Delay in doing so may defeat their purpose since the test of the validity of one of these forms, among other things, will be the DATE OF RECEIPT stamped thereon by the Civil Service Commission prior to the death of the annuitant or employee.

The Commission also points out that the title used by the supervising official should be indicative of the position of supervisor. Such title as clerk, engineer, etc., do not indicate such authority unless followed by some such word as, "Supervisor."

Freezing at the Tyler soil erosion station on January 20 and 21 severely damaged the cover crop of oats. A rain of 1.85 inches following this freeze caused comparatively high soil losses on all cultivated lands, according to R. W. Baird. Greater damage from erosion resulted on the clay than on the sandy soils, and the damage to crops from the freeze was also greater, practically all of the crop being destroyed on the clay gull spots.

F.O. Bartel reports visitors at the Statesville soil erosion station from two continents during the month of January. Africa was represented by Dr. E. Tisher of the Pretoria, South Africa, Experimental Laboratory, and Europe by E.W. Russell, son of Sir John Russell of the Rothamstead Experiment Station, England.

Visitors at the Temple soil erosion station, as reported by P.L. Hopkins, were 30 employees of the Elm Creek Soil Erosion Service Project and a party of 25 from Dublin, Texas, and vicinity, who were brought to the Station by Mr. Hallmark, the County Agent.

C.E. Ramser presented a paper entitled "Preliminary Results on Terracing Collected at the Soil Erosion Experiment Stations" at a national meeting of the agricultural engineers of the Soil Erosion Service at Oklahoma City, on February 6.

A paper entitled "The Relation of Soil and Moisture Conservation Activities to the Civil Engineering Profession in the Red Plains Region" was presented by H.S. Riesbol at the January meeting of the Oklahoma section of the American Society of Civil Engineers at Stillwater on Feb. 2.

A group of about 75 engineers attending the national meeting of the Soil Erosion Service at Oklahoma City were shown over the Guthrie soil erosion station on February 8.

D.G. Miller has commenced the work of testing various Portland cements to determine their alkali resistance. Some 50 cements have been received or shipped and it is expected to test about 75 cements during



the test. Several cements are manufactured especially for alkali resistance. A few of the cements to be tested are those for use in the Fort Peck dam. A few special cements for use by the Tennessee Valley Authority are also being tested.

D. L. Yarnell was joint author with Professor F.T. Mavis of a paper entitled "The Frequency of Intense Rainfall in Iowa", delivered before the Iowa Engineering Society, February 7. Work done under the Civil Works project on the study of precipitation for short periods of time includes determination and frequency of rainfall for periods up to two hours. The paper presents a chart showing the frequency of intense rainfall in Iowa plotted on logarithmic scale for 5 minutes to 2 hours and from 1 to 6 days. The interval between 2 hours and 24 hours is interpolated and the points plotted from the Civil Works project and the Miami Conservation District work show remarkably good alignment. It is expected to work up data for the United States east of the 103d meridian to show the frequency of intense rainfall for periods ranging from 5 minutes to 6 days duration. The data show that there is a relationship between the frequency of intense monthly rainfall and maximum 24 hour rainfall.

The Cotton Ginning and Fiber Laboratories at Stoneville had several visitors during February, among whom were John W. Wright of the Division of Cotton Marketing, Washington; Dr. F.L. Thomas, State Entomologist of Texas, and several representatives of ginning machinery manufacturers and cotton ginners' publications.

Chas. A. Bennett, accompanied by C. H. Billett, the Government photographer, will start on a trip through Arkansas, Louisiana, Oklahoma, and Texas about the last of the month, during which they will confer with ginning machinery manufacturers and take photographs of existing ginning installations for inclusion in a bulletin now under preparation.

A non-technical article by Chas. A. Bennett, entitled "Mechanical Progress in Cotton Ginning to 1844" was submitted on February 14 to The Cotton and Cotton Oil News for publication in their first March issue of that magazine.

W.W. McLaughlin spent about three weeks at Minot, N. Dak., in connection with work being done by the Bureau in cooperation with the U.S. Biological Survey in establishing several migratory bird refuges in North and South Dakota, Montana, Minnesota, and Michigan. The work includes the construction of dams and other works necessary to impound water for the purpose of creating artificial lakes. Mr. McLaughlin spent several days in the Washington office before returning to California.

A.T. Mitchelson reports the completion of the Corona unit, the eighth of the experimental water-spreading plots for which P.W.A. funds were allotted to our Bureau. The Corona unit is located at a point where Coldwater Creek debouches from a canyon and, as it reaches flatter slopes, spreads out over Temescal Wash. The general layout includes the creation of a diversion well and three Parshall flumes. Two of the flumes measure water diverted on higher spreading grounds while the third measure the excess flood water which can not be artificially spread but which is absorbed in Temescal Wash. The object of the artificial spreading is to hold as much of the excess water as possible in the upper end of the cone. Continuous water-stage recorders are maintained on all the flumes.



On January 31 the California Supreme Court handed down what was undoubtedly its most important water-right decision in many years, and one which brought considerable satisfaction to irrigationists of the State according to Wells A. Hutchins. The court held that the old doctrine of riparian rights has been modified and that the rule of reasonable use "applies to all water rights enjoyed or asserted in this State, whether the same be grounded on the riparian right or the right, analogous to the riparian right, of the overlying landowner, or the percolating water right, or the appropriative right." The court undertook to state principles under which the conservation of unused waters for beneficial purposes could be brought about - principles which would recognize the proper rights of the riparian owner "but still place the law of the state in such condition that he may not, by assuming an arbitrary position, forestall by injunction proper programs of conservation, or assert such claims for compensation for any alleged infringement of his right as are fanciful and would be prohibitive."

R. L. Parshall submitted to the consulting board of the All-American Canal, which met at Yuma, Jan. 19, a suggested design of a vortex-tube sand trap for that canal, together with tabulations of data based on about 50 observations on the use of that type of sand trap at the Imperial Valley (Calif.) laboratory last summer. Apparatus was installed at the Bellvue laboratory to investigate the possibilities of proposing a non-clogging lateral sluiceway such that the material would be progressively sluiced out, beginning at the back end, and the channel cleared as the cutting approached the outlet. However, the limited study made on this sluiceway was not sufficient on which to base definite conclusions.

Colin A. Taylor prepared two papers for publication in Conservation Activities, one entitled "Controlling Runoff in Irrigated Orchards" and the other "Runoff and Erosion from Agricultural Areas." Mr. Taylor gave an informal talk on "Rainfall Losses by Runoff and Erosion", before the Pomona Walnut Farm Center.

A talk on sewage irrigation work done by the Bureau was given by Harry G. Nickle before the Seventeenth Annual Water Works Short School held by the Texas Section of the Southwest Water Works Association.

A paper entitled "Fertilizer placement experiments in 1934" prepared by G.A. Cumings, was presented before the soils section at the meeting of the Association of Southern Agricultural Workers in Atlanta, Ga., Jan. 30. The results of extensive experimental work show that fertilizer is most efficiently utilized by beans, cotton, potatoes, and tobacco when placed in a band at each side of the row. Similar trends in limited experiments were observed with other crops. Practical application of the results is now indicated by the development by manufacturers of bean, cotton, and potato planters equipped to place the fertilizer at the side of the row, and by numerous inquiries from farmers regarding equipment for side placement of fertilizers.

On February 1 and 2 a round table conference of over 40 executives of the several sugar companies from Utah, Idaho, Wyoming, Nebraska, Colorado, and Kansas was held in Fort Collins. Representatives of the Bureau of Plant Industry presented agronomic material. E.M. Mervine discussed recent machine developments and labor and power facts.

C. W. McBirney reports that after considerable rain the weather has cleared up somewhat and beet planting in California is well under way. Cooperative experimental hill and bed beet plantings are being put in, both in the northern and southern parts of the State, as the ground dries out.



Regardless of the winter rains, the following soils have been placed in the bins at the Farm Tillage Machinery Laboratory at Auburn, Ala.: Norfolk sand, Davidson clay, Davidson loam, Cecil clay, Eutaw clay, and Oktibbeha clay.

The senior class in landscape gardening of the Alabama Polytechnic Institute are using the Farm Tillage Machinery Laboratory grounds as a class problem. Many shrubs and trees will be planted by the class.

On February 6 R.B.Gray and J.W. Randolph conferred with A.H.Emery at Stamford, Conn., with reference to the dynamometers to be used at the Farm Tillage Machinery Laboratory. Two dynamometer units are to be constructed. For the power car, a unit containing three measuring cells will measure the linear forces from a standard tillage implement. The reaction dynamometer will measure both the linear and rotating forces on an implement. This unit uses seven cells to obtain the various forces. Records from the unit will be recorded upon one sheet of paper, with both time and distance measurements.

C.K. Shedd of the Corn Production Machinery project at Ames, Iowa, reports that the basin lister, an invention developed on this project, was displayed as an educational exhibit during Farmers' Week at Iowa State College. It attracted a good deal of interest and favorable comment. Mr. Shedd gave two talks to farmers during the week, one on new developments in equipment for growing corn and one on harvesting and handling corn fodder.

E.M. Dieffenbach delivered a paper "Heights Reached with Present Pecan Spraying Equipment" on Feb. 20 at the annual convention of the Southeastern Pecan Growers Assn. at Albany, Ga. The paper was based on the results of tests made by Mr. Dieffenbach at Albany.

D.A. Isler states that tests of a small model suction device in the pink bollworm clean-up work showed that it is possible to remove the fine surface trash by this method.

In a test conducted by E.D.Gordon on dryer performance when drying baled forage, it was found that the power requirements were 67% greater and the fuel requirements were 60% greater than when drying an equal amount of the finely chopped forage in the rotary dryer. The slow diffusion of the moisture in the bale to the surface was evidenced by the rapid drop in humidity of the dryer exhaust.

Mr. Hurst reports that the testing of several commercial and experimental seed treaters at Arlington Farm, Va., has been completed by W.R.Humphries and F.D. Fulton. An automatic feeder and timer for feeding grain into treaters has also been worked out. Several power driven feeders for applying fungicide dust have been constructed and are being tested.

A car heater test with apples in transit has been completed by W.V.Hukill. The trip was made from Yakima, Wash. to New York City. It was reasonably cold during the test and artificial heat was required during a considerable part of the trip. The advantage of furnishing heat only when the inside temperature indicates the need for it was further demonstrated during the test. A car in which the air was saturated by evaporating water was included in the test. Water evaporated at the heater absorbed the heat of vaporization and released it upon condensation in the colder parts of the car. In this way more heat may be delivered by a given quantity of air. The temperatures in the car operated in this way were more uniform than in any other car.

Wallace Ashby presented a paper on rural housing at the meeting of the Home Economics Section of the Assn. of Southern Agricultural Workers, at Atlanta, Jan. 30 - Feb. 1. He returned by way of Knoxville and visited the Norris Dam and the town of Norris.

Technical Bulletin 442, Bridge Piers as Channel Obstructions, by D. L. Yarnell, was issued during the past month.